

Full Length Research Paper

Consumption patterns and intra-household roles in the production, processing and marketing of soyabeans in the Northern Agricultural Zone of Benue State, Nigeria

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The study determined the consumption patterns and intra-household roles in the production, processing and marketing of soyabeans in the Northern Agricultural Zone of Benue State, Nigeria. A structured interview schedule was used to collect data from a sample of 80 randomly selected respondents from ten extension blocks. Findings indicated that majority (71.3%) of the households prepared their soyabeans farm manually while family and hired labour (66.3%) were the major sources of labour. Sixty per cent of the respondents grew sole soyabeans on their farm. Majority (75%) of the respondents grew improved varieties of soyabeans and majority (97.5%) of the respondents also used planting methods recommended by the Benue State Agricultural and Rural Development Authority. More than half of the respondents consumed soyabeans on daily basis mostly in form of paste. Adult males played major roles in acquisition of land, site selection, purchasing of fertilizers and herbicides as well as agro-chemical application. Adult males, females and children were more involved in land preparation, weeding and harvesting of soyabeans. The study further showed that the serious constraints experienced by farmers in soyabeans production, processing and marketing include high cost of hiring tractors, high cost of fertilizers and other agro-chemicals and lack of finance. This study recommended the provision of institutional loans and credit facilities to encourage farmers to produce more soyabeans.

Key words: Inter-household roles, soyabeans, consumption patterns, major constraints.

INTRODUCTION

The soyabeans (*Glycine max*) which belong to the family of Leguminosea, subfamily Papilion oldeae, and the genus *Glycine* is one of the most important potential sources of protein and energy available to man. The value of soyabeans both for satisfying human dietary needs and compounding livestock feed is only recently becoming appreciated in Nigeria. At present, it occupies an important position among the grain legumes due to its high protein supplement for enriching cereal diets and has earned a special place in nutritional programmes. The micronutrient content of soyabeans is of great significance. For example phytochemicals such as saponins and isoflaunonic phytoestrogens found in soyabeans pro-

mote bone health and reduce the risk to both cardiovascular disease and hormone-related cancers (Fallon and Enig, 1995). The role of soyabeans in reducing serum lipids as well as reducing the risk of coronary heart disease has been recognized as an important dietary contribution to health (Fullon and Enig, 1995). Fullon and Enig (1995) further reported that other potential benefits of soyabeans include their extremely low glyceamic index, which suggest that they may be a particularly important food for diabetics and individuals at risk of becoming isulin resistant and the relief of menopausal symptoms.

Collins (2000) observed that soyabeans are one of the few plant sources of complete protein with all eight essential amino acids. She also noted that soyabeans contain phytoestrogen, which help to reduce menopause symptoms and may help prevent breast cancer and oste-

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oporosis. Like most beans, soyabeans are rich in the best sort of fibre. They are useful sources of folate, vitamin B₃, vitamin B₆, vitamin E, magnesium, potassium, iron, copper, phosphorus, manganese. They also contain large amount of biotin, the A and B vitamins, vitamin K, thiamine, iodine, calcium and folic acid.

The seeds of soyabeans are consumed green, dry or sprouted in China, Japan and East Asia countries, while in Nigeria soyabeans is processed into paste and flour. Soya milk, obtained by grinding boiled seed with water and sieved extensively, is used for infant feeding in Nigeria. Soyabeans flour is also becoming increasingly important as an ingredient of foodstuffs. A large proportion of the soyabeans oil is used for edible purposes. Soyabeans oil finds wider application in the manufacture of soaps, glycerine, printing inks, greases, lubricants, water proofing materials, oil cloth, linoleum, putty, resins, insecticides and disinfectants. Also, soya lecith, an important product of oil industry is used in food industries, cosmetics, pharmaceuticals, paint and plastic industries and in detergents (FAO, 1992).

Soyabeans is also often grown as a pasture, forage or fodder crop and used either as hay or silage or as green manure. The residue left after the extraction of oil is a very rich source of protein feeds for cattle, pigs and poultry. Soyabeans is also used in the manufacture of adhesives and fertilizers and are widely employed for the industrial production of antibiotics. Because of its numerous uses, it has become very important in Nigeria and has been referred to as "the wonder crop". Its use in Nigeria diet has been promoted by the Nigerian government and efforts are being made to encourage farmers to grow more soyabeans.

Benue State has been the major producing area in the country, producing over 65% of the nation's output (Ajayi-Obe and Ladejo, 1986). In 1989, the IITA in collaboration with the Canadian University Services (CUSO) conducted a detailed survey in Benue State and found that soyabeans was cultivated in 75% of the randomly selected villages. In the "Tiv" area of the state, 96% of the villages were growing soyabeans while in the non-Tiv areas of the state, 52% of the villages were growing soyabeans (Dashiel, 1993). Since the early 1980s, there has been a major increase in soyabeans production. A survey conducted on the total production of soyabean in the five local government areas of Northern Agricultural Zone of Benue State revealed 5.5% increase in soyabean production from 1985 to 1989 (Dashiel, 1993). The expansion is a result of both an increase in the number of farmers growing the crop and established producers increasing their production. In these areas, soyabeans play a very significant role in the socio-economic lives of the people as large numbers of households grow the crop both as cash and food crop.

However, according to Agwu and Chukwu (2006) household roles in crop production is not static but tend

to be dynamic in response to pressure from the changing social, cultural and economic milieu. Hence division of roles and responsibilities cut across management decision-making, ownership and/or control over resources, performance of tasks and distribution of benefits/products. Achike (2002) observed that within these role segments, the socio-cultural allocation of functions between men and women may or may not be consistent depending on changes in rural, social, economic and institutional conditions which may occur over time, with potentially critical impact on traditional gender roles, opportunities, and constraints in agricultural production and processing. This study sought to highlight the consumption patterns and contemporary intra-household roles and responsibilities among soyabeans producing households in the Northern Agricultural Zone of Benue State. Specifically, the objectives of the study include: to describe the different soyabean production systems of farmers in the area, determine the relative importance of soyabeans in the menu of the rural households in the area, ascertain the intra-household roles in the production, processing and marketing of soyabeans, and determine the major constraints to soyabeans production, processing and marketing in the area.

METHODOLOGY

The study area

Benue State is one of the states in North Central Nigeria. The state has a land area of 300,955 square kilometers. The State is located approximately between latitudes 6¹/₂°N to 8¹/₂°N and longitude 7¹/₂°E to 10°E. It is bounded by the following states: Nassarawa to the north, Taraba to the east, Cross-River to the south east, Enugu to the south west and Kogi to the west (Figure 1). The South eastern part of the state also shares border with the Republic of Cameroon. Most of the state is in the southern guinea savannah. The 2006 population census puts the population of Benue State at 4,219,244. Between 70 to 80% of the population live in rural areas. Agriculture accounts for over 75% of economic activities. The state has a total of twenty three Local Government Areas (LGA) out of which seven are in the Northern zone.

This study was carried out in the Northern Agricultural Zone of Benue State. The zone lies between latitudes 6°50' North and longitude 7°50' to 10° East. The zone covers an estimated land area of about 10,318.2 km² and has an estimated population of about 959,512 persons (Federal Office of Statistics, 1996). The zone is comprised of seven LGAs namely: Gboko, Buruku, Tarka, Guma, Makurdi, Gwr East and Gwer West. The zone has tropical climate with two distinct seasons (rainy and dry seasons). The rainy season commence from April to October, while the dry season is from November to March. Two rainfall peaks are observed with an annual average rainfall of about 1500 mm (BNARDA, 1997). The lower peak occurs in May – June, while the higher peak occurs in August – September. The higher peak is followed by 3 – 4 months of dry season (December – March), which is noted by harmattan winds. According to BNARDA (1997), the daily mean temperature during the rainy season is 28°C while in dry season the average temperature is 35°C.

The major occupation of the people in the zone is agriculture. The major agricultural produce includes: livestock such as goat,



Figure 1. Map of Nigeria showing Benue State.

piggery, and sheep as well as cattle production. Others are cassava, rice, maize, yam, soyabeans, sorghum, sweet potatoes, millet, groundnut, cocoyam, cowpea, plantain, banana and citrus production (BNARDA, 1997). Within the zone, places like Gboko, Wannune, Buruku and Tyowanye are the greatest producers of soyabeans. A small proportion of them engage in trading, while others are in civil service but engages in some farming activities.

Population and sampling

The population for the study consists of all the households cultivating soyabeans in the Northern Agricultural Zone of Benue State. The seven LGAs in the zone are divided into thirteen extension blocks by the BNARDA. Using the delineation by the BNARDA, ten extension blocks, namely: Gboko, Wannune, Akpaher, Abua, Buruku, Tyowanye, Uikpayan, Agasha, Tseakenyi and Apir were selected through simple random sampling technique out of the thirteen extension blocks in the zone.

From each of the ten blocks selected, eight soyabeans cultivating households were randomly selected giving a total of eighty (80) soyabeans farmers for the study.

Method of data collection and measurement of variables

Structured interview schedule was developed and used to collect relevant information from the respondents. Relevant questions were asked on modes of land preparation, methods of planting, types of cropping patterns in soyabeans farms, sources of soyabeans seeds, types of soyabeans grown, time of the year soyabeans were planted and types of soyabeans varieties used. Questions were also asked to determine whether the respondents used agrochemicals and fertilizers on soyabeans farms and their sources of these inputs.

To ascertain the intra-household roles in production, processing and marketing of soyabeans, each of the respondents were asked to indicate the activities performed by an individual in the household. A four-point Likert-type scale was developed and used to determine the perceived relative importance of soyabeans, yam, cassava, maize, rice, millet, cowpea, cocoyam, guinea corn, and sweet potatoes in the menu of the respondents. The four (4) Point Likert-type scale was weighed according to the degree of importance. The following scaling procedure was adopted: very important (4), important (3), of little importance (2) and not important (1). These values were added and divided by 4 to get a mean value of 2.5. Based on this, crops with mean scores below 2.5 were taken to be of low importance in the menu of the households, while crops with mean scores of 2.5 or above were taken to be of high importance. Also, in determining the major constraints to soyabeans production, processing and marketing as perceived by the respondents in the study area, the following scaling procedure was adopted. Not very serious constraint (1), serious constraint (2), very serious constraint (3). These values were added and divided by 3 to get a mean value of 2.0. On the basis of this, variables with mean scores below 2.0 were taken not to be serious constraints while variables with mean scores equal to 2.0 or above were considered as serious constraints to soyabeans production, processing and marketing in the area.

Data analysis

Percentages were used to describe the farmers' production systems and intra-household roles in soyabeans production, processing and marketing. Mean scores were used to determine the relative importance of soyabeans in the menu of the farmers in the area as well as the major constraints to soyabeans production, processing and marketing in the study area.

RESULTS AND DISCUSSION

Soyabeans production systems

Mode of land preparation: Entries in Table 1 show that majority (71.3%) of the respondents prepared their soyabeans farms manually while the remaining 28.8% of the respondents prepared their soyabeans farm lands using tractors. This finding indicates that majority of the respondents used manual labour for preparing their farmlands. This could be as a result of unavailability of tractors or high cost of the available ones. However, it is a known fact that the use of tractors for land preparation leads to increased efficiency of production and should be encouraged among the farming households for increased productivity to be achieved in the area.

Cropping patterns: Entries in Table 1 also show that about 60.0% of the respondents in the study area grew sole soyabeans on their land without intercropping. About 20.0% of the respondents inter-cropped soyabeans with maize, 15% intercropped soyabeans with sorghum while 3.8% of the respondents intercropped soyabeans with cassava. Also 1.3% of the respondents intercropped soyabeans with yam. This implies that farmers practiced intercropping probably to economize fertilizer usage and to limit or minimize spending too much money on labour hiring and purchase of fertilizer.

Sources of soyabeans seeds and types of varieties grown: Entries in Table 1 show that 75% of the respondents bought their soyabeans seeds from Benue State Agricultural and Rural Development authority's office (BNARDA) while 13.8% of the respondents got their seeds from Ministry of Agriculture and Natural Resources (MANR). However, about 11.0% of the respondents got their soyabeans seeds from the open market. The table also shows that majority (75.0%) of the respondents grow improved varieties of soyabeans while 20.0% indicated that they grow both improved and local varieties of soyabeans. Also, about 5% of the respondents grew only local varieties.

Types of improved soyabeans varieties grown: Data on Table 1 further reveal that majority (58.8%) of the respondents grew TGX 1448 – 2E, 26.3% grew TGX 536 – 02D, 12.5% grew TGX 923 – 2E, while 2.5% of the respondents grew TGX 344. The result show that the respondents used the recommended varieties especially TGX 1448 – 2E which has a very high yield potential.

Methods of planting soyabeans and time of planting: Entries in Table 1 show that 52.5% of the respondents broadcast soyabeans seeds on their farms, about 40% used drilling method of planting and 5.0% of the respondents planted soyabeans at 5 cm apart. These are

the planting methods recommended by Benue State Agricultural and rural Development Authority (BNARDA, 2000). However, 2.5% of the respondents did not have specified patterns of planting. Entries in Table 1 further show that 63.8% of the respondents planted soyabeans between July – August, 33.8% planted soyabeans between June – July, while 2.5% planted soyabeans between May – June. However, BNARDA (2000) recommended that soyabeans be planted between June 25 – July 5.

Sources and types of fertilizers used by soyabeans farming households

Use of fertilizers and types used on soyabeans farms: Entries in Table 2 show that majority (96.0%) of the respondents used fertilizers while 3.8% of the respondents did not use fertilizers. Out of those that used fertilizers, 98.8% used single super phosphate (SSP) fertilizer, while 1.2% used calcium ammonium nitrate (CAN) fertilizers on their soyabeans farms. Benue State Agricultural and Rural Development Authority (BNARDA, 2000) recommended 10 kg of nitrogen, 36 kg of phosphorus and 20 kg of potassium per hectare. Nitrogen is required at the early stages of the plant growth to enable the plant have a good start before nodulation occurs. To get the required 10 kg nitrogen, 36 kg of phosphorus and 20 kg of potassium per hectare, BNARDA (2000) recommended the application of 22 kg of urea, 37 kg of CAN mixed with 200 kg (4 bags) of SSP. In other words, the farmers were not applying the recommended combination of fertilizers on their soyabeans farms and by implication cannot realize optimum yield of the crop.

Farmers' sources of fertilizer: Data on Table 2 further show that 73.8% of the respondents sourced their fertilizers from open markets, 11.3% sourced their fertilizers from the Benue State Agricultural and Rural Development Authority's offices, while 7.5% sourced their fertilizer from the Ministry of Agriculture and Natural Resources. This findings show that majority of the farmers got their fertilizers from the unregulated open market and might end up buying adulterated fertilizers at possibly higher costs.

Farmers' perception of the importance of soyabeans in household menu

Soyabeans consumption: Table 3 shows that 57.5% of the respondents consumed soyabeans on daily basis, 17.5% consumed soyabeans twice daily while 20% consumed soyabeans three times in a week. Also 5% consumed soyabeans 4 times in a week. The findings show that soyabeans is one of the major crops consumed in the area. According to Setright (1996) and Collins (2000) eating more soya foods not only lower cholesterol

Table 1. Distribution of respondents based on production systems (N = 80).

Varieties	Frequency	Percentage
Mode of land preparation		
Manual	57	71.3
Tractor	23	28.7
Cropping pattern		
Sole soyabeans	48	60.0
Soyabeans/Maize	16	20.0
Soyabeans/Sorghum	12	15.0
Soyabeans/Cassava	3	3.7
Soyabeans/Yam	1	1.3
Source of soyabeans seeds		
MANR	11	13.7
BNARDA Office	60	75.0
Open market	9	11.3
Types of soyabeans varieties grown		
Improved varieties	60	75.0
Local/Improved varieties	16	20.0
Local varieties	4	5.0
Types of improved varieties of soyabeans grown		
TGX 1448 – 2E	47	58.7
TGX 536 – 02D	21	26.3
TGX 344	2	2.5
TGX 923 – 2E	10	12.5
Methods of planting soyabeans		
Broadcasting	42	52.5
Drilling	32	40.0
5 cm apart	4	5.0
No specific patterns of planting	2	2.5
Time of planting soyabeans		
May – June	2	2.5
June – July	27	33.7
July – august	51	63.8

Table 2. Percentage distribution of respondents based on sources and types of fertilizer used on soyabeans farms.

Types/sources of fertilizer	Frequency	Percentage
Use of fertilizer		
Yes	77	96.3
No	3	3.8
Types of fertilizer used		
SSP	79	98.7
CAN	1	1.3
Sources of fertilizer		
MANR	4	5.0
BNARDA Office	9	11.3
Open market	59	73.7
Farmer Co-operative Association	2	2.5
Soyabeans co-operative Association	6	7.5

Table 3. Distribution of respondents based on importance of soyabeans in household menu.

Farmers' perception	Frequency	Percentage
Soyabeans consumptions		
Once a day	46	57.5
Twice a day	14	17.5
Three times a week	16	20.0
4 times a week	4	5.0
Forms in which soyabeans are consumed		
Processed soyabeans into paste	55	68.7
Processed soyabeans into flour	17	21.3
Boiled soyabeans	3	3.7
Toasted soyabeans	5	6.3
Use of soyabeans paste		
Moi-moi	9	11.3
Akara	27	33.7
Milk	41	51.3
Biscuit	3	3.7
Soyabeans as weaning food		
Used soyabeans for weaning	76	95.0
Did not use soyabeans for weaning	4	5.0
Time of starting infants with soyabeans food		
3 months	26	32.5
6 months	31	38.7
9 months	20	25.0
12 months	3	3.8

levels and help prevent heart disease but reduce the risk of some cancers such as breast, prostate and cervical.

Forms in which soyabeans were consumed: Table 3 shows that majority (68.8%) of the respondents processed soyabeans into paste for easy consumption, 21.3% processed soyabeans into flour before consumption, and 3.8% boiled soyabeans while 6.3% of the respondents consumed toasted soyabeans.

Use of soyabeans paste: According to the findings in Table 3, 51.3% of the respondents processed soyabean paste into milk, while 33.8% of the respondents processed soyabeans paste into akara, 11.3% of the respondents processed soyabeans into puddings (moi-moi) and very few processed soyabeans paste into biscuits. This result agrees with Ogundipe and Oguntunde (1990) study of soyabeans processing and utilization technologies at Ogbomoso, Oyo State.

Soyabeans as weaning food and time of starting infants with soyabeans food: Table 3 also indicates that majority (95.0%) of the respondents used soyabeans for weaning their infants while 5.0% of the respondents did not use soyabeans for weaning their infants. The data further show that 38.8% of the respondents who used

soyabeans for weaning, introduced soyabeans food to their infants at the age of 6 months, 32.5% of the respondents introduced soyabeans food to their infants at the age of 3 months, while 25.0% of the respondents introduced soyabeans to their infants at the age of 9 months. Also only about 4.0% of the respondents introduced soyabeans to their infants at the age of 12 months.

Field observations also showed that almost all the respondents incorporated soyabeans into their meals and they were aware that soyabean is a rich source of protein.

Respondents' perceived relative importance of different crops in household menu

Table 4 indicates that soyabeans ($\bar{X} = 3.89$) and yam ($\bar{X} = 3.89$) were perceived as the most important crops relative to other crops in the menu of the respondents. However, cowpea ($\bar{X} = 3.85$), cassava ($\bar{X} = 3.61$), maize ($\bar{X} = 3.61$), rice ($\bar{X} = 3.51$), guinea corn ($\bar{X} = 3.35$), millet ($\bar{X} = 3.11$) and cocoyam ($\bar{X} = 2.78$) were also regarded as important crops in the menu of the respondents.

Table 4. Respondents' perceived relative importance of different crops in their family daily menu.

Crop	Very important	Important	Of little importance	Not important	Mean
Yam	71	9	-	-	3.89*
Soyabeans	73	5	2	-	3.89*
Cowpea	70	8	2	-	3.85*
Cassava	49	31	-	-	3.61*
Maize	49	31	-	-	3.61*
Rice	44	33	3	-	3.51*
Guinea corn	34	40	6	-	3.35*
Millet	24	41	15	-	3.11*
Sweet potatoes	5	65	10	-	2.81
Cocoyam	7	48	25	-	2.78

*Highly important.

Soyabeans was rated very important probably because of its numerous uses, such as weaning diet for infants and treatment of malnutrition in kersey children. Field observations show that soyabeans were incorporated into the preparation of traditional foods such as soup, fired paste, pap and pudding. Yam was also perceived as the most important crop relative to other crops in the menu of the respondents. This finding agrees with the finding of Agwu and Alu (2005), which stated that yam and soyabeans were the most important and cultivated crops in Benue State. Also BNARDA (2000) indicated that yam and soyabeans were the most important crops cultivated in Benue State.

Respondents' perception of roles performed by household members in the production, processing and marketing of soyabeans

Table 5 shows that in the area, every member of the household participated in the various activities involved in soyabeans production, processing and marketing. However, adult males were more involved in acquisition of land (95.3%), site selection (95.0%), purchasing of fertilizer (71.3%), purchasing of herbicides (75.0%), herbicides application (90.0%) and storage of soyabeans (81.3%). Adult females dominated in such activities as marketing of soyabeans (62.5%) and purchasing of soyabeans seeds (58.8%). Also adult males, females and children participated in land preparation (85%), planting of soyabeans (70.0%), fertilizer application (55.0%), weeding of soyabeans farms (77.5%), harvesting of soyabeans (90.0%), thrashing of soyabeans seeds (72.5%) and winnowing of soyabeans seeds (47.5%).

The implication of this finding is that all the members of the household actively participated in soyabeans production, processing and marketing in the area, although adult male dominated in handling some delicate roles such as fertilizer and herbicide application. According to Agwu and Chukwu (2006) production systems of this

nature demands that access to and control over resources such as land, credit facilities, agricultural inputs, education, training, extension services and technology must be seen within the broad intra-household context.

Constraints to soyabeans production, processing and marketing

Data on Table 6 indicate that the following factors were considered as serious constraints in soyabeans production, processing and market: high cost of hiring tractors for land preparation ($\bar{X} = 2.96$), high cost of fertilizers ($\bar{X} = 2.94$), high cost of agro-chemicals ($\bar{X} = 2.93$) and lack of finance ($\bar{X} = 2.93$). Other serious constraints include: high interest rate on loans ($\bar{X} = 2.86$), poor price of finished products ($\bar{X} = 2.85$), high labour cost ($\bar{X} = 2.84$), inadequate credit availability ($\bar{X} = 2.79$), inadequate processing facilities ($\bar{X} = 2.28$) and inadequate storage facilities ($\bar{X} = 2.15$). Eleghasim (2002) also showed that high cost of labour, lack of finance, high cost of hiring tractors and inadequate storage facilities were also serious constraints to crop production in Okigwe Agricultural Zone of Imo State. Field observation also indicated that farmers found it very difficult to obtain enough agro-chemicals because of high cost so as to efficiently control the spread of diseases and pests.

Factors considered not to be of serious constraints in soyabeans production, processing and marketing were low soil fertility ($\bar{X} = 1.91$), disease and pest attack ($\bar{X} = 1.88$), weeding of soyabeans farms ($\bar{X} = 1.85$), low/poor extension contact ($\bar{X} = 1.48$), scarcity of farm land ($\bar{X} = 1.3$), land acquisition ($\bar{X} = 1.31$) and lack of soyabeans improved varieties ($\bar{X} = 1.22$).

Table 5. Percentage distribution of respondents based on household roles in production, processing and marketing of soyabeans in the area.

Activities	Adult male	Adult female	Adult male And female	Adult male and children	Adult female and children	All of the above
Acquisition of land	95.3	2.5	1.3	-	-	-
Site selection	95.0	1.3	3.8	-	-	-
Land preparation	7.5	1.3	-	3.8	2.5	85.0
Purchasing of soyabeans	21.3	58.8	-	15.0	5.0	-
Seed planting	-	-	-	-	-	-
Planting soyabeans	-	18.8	3.8	-	7.5	70.0
Purchasing fertilizer	71.3	5.0	15.0	-	3.8	5.0
Fertilizer application	30	-	1.3	-	13.8	55.0
Weeding of soyabeans farm	2.5	3.8	2.5	1.3	12.5	77.5
Purchasing of herbicides	75.0	5.0	15.5	1.3	-	3.8
Herbicides application	90.0	3.8	-	1.3	1.3	3.8
Harvesting of soyabeans	3.8	1.3	-	-	5.0	90.0
Thrashing of soyabeans	1.3	1.3	-	1.3	23.8	72.5
Winnowing of soyabeans	-	28.8	-	1.3	22.5	47.5
Packaging of soyabeans	52.5	2.5	7.5	-	13.8	23.8
Marketing of soyabeans	12.5	62.5	15.0	2.5	3.8	3.8
Storage of soyabeans	81.3	2.5	5.0	-	6.3	5.0

Table 6. Respondents perceived constraints to soyabeans production, processing and marketing.

Constraints	Not serious	Serious	Very serious	\bar{X} (Mean)
High cost of hiring tractor	-	3	77	2.96*
High cost of fertilizer	-	5	75	2.94*
High cost of agro-chemicals	-	6	74	2.93*
Lack of finance	1	7	73	2.93*
High interest rate of loan	1	9	70	2.86*
Poor price of finished product	2	8	70	2.85*
High labour cost	1	11	68	2.85*
Inadequate credit availability	2	13	65	2.79*
Inadequate processing facilities	4	46	28	2.28*
Inadequate storage facilities	7	54	19	2.15*
Low soil fertility	14	59	7	1.91
Unavailability of organic fertilizer	14	61	5	1.89
Pest and disease control	15	60	5	1.88
Weeding of soyabeans farms	19	54	7	1.85
Low/poor extension contact	44	34	2	1.48
Scarcity of farm land	56	18	6	1.30
Land acquisition	59	17	4	1.31
Lack of improved soyabeans varieties	63	16	1	1.22

*Serious constraints.

Conclusion and recommendation

The results of the study showed that majority (67.5%) of the respondents were males that were married and had average family size of 7 members with an average number of 13 years experience in soyabeans production,

processing and marketing. Majority (65%) of the respondents cultivated soyabeans on their family land; carried out their farm operations manually and relied on their families as their major sources of farm labour. Also, most of the respondents planted improved varieties of soyabeans such as TGX 1448 – 2E, TGX – 02D and

TGX 923 – 2E on their farms. Majority of the respondents adopted the recommended methods of planting soya-beans. The majority of the respondents incorporated soyabeans in their daily meals. The findings also showed that adult males played major roles in acquisition of land, application of herbicides and fertilizer, while land preparation, planting of soyabeans, weeding of soyabeans farms, harvesting of soyabeans and thrashing of soya-beans were jointly done by adult males, females and children. The findings further revealed that serious constraints facing the farmers in the production, processing and marketing of soyabeans include high cost of hiring tractors, lack of finance, high cost of fertilizers, high cost of agro-chemicals and high interest rate on loans. In order to solve the problems of soyabeans farmers in the area, there is need to link farmers to institutional sources of credits to enable them operate effectively. Government should as a matter of necessity develop a functional institutional framework for adequate and timely supply of fertilizers and other important agro chemicals to farmers.

REFERENCES

- Achike AI (2002). Gender Dynamics of Agricultural Technological Change: Implication on Income Poverty Alleviation in Southeastern Nigeria. A Research Proposal Presented at the African Technology Policy Studies (ATPS) International Workshop held at Abuja, November 10 – 16, 2002.
- Ajayi-Obe MI, Ladejo HT (1986). Economics of soyabeans production in Ado-Odo, Ogun State. Proceeding of the 6th annual Workshop of Nigerian Scientists and National -Coordinated Research Project Publication, pp. 90-97.
- Agwu AE, Alu IJ (2005). Farmers' perceived constraints to yam production in Ushongo local government area of Benue State, Nigeria. *Agricultural Rebirth for Improved Production in Nigeria*. pp 347-350
- Agwu AE, Chukwu PC (2006). Intra-household roles and constraints in rice cropping systems in Aninri Local Government of Enugu State, Nigeria. *International Journal of Agriculture and Rural Development*. Vol. 7 No. 1. www.ajol.info/journals/ijard
- BNARDA (1997). Annual Report Benue State Agricultural and rural Development Authority, Makurdi.
- BNARDA (2000). Agricultural production recommendation for Benue State. Ext. Bull. 3: 30-33.
- Collins A (2000). Soyabeans weight loss tips. *Diet Nutrition*, [www.diet homepage](http://www.diethomepage.com).
- Dashiel KE (1993). Soyabeans production and utilization in Nigeria. Paper presented at the National Workshop on Small Scale and Industrial Level, Processing of soyabeans Held at IITA Ibadan, July 1993.
- Eleghasim IC (2002). Farmers; perception of the contributions of the Fadama programme to Poverty Alleviation in Okigwe Agricultural Zone, Imo State. B. Agric. Project, Department of Agricultural Extension, University of Nigeria, Nsukka.
- Fallon S, Enig M (1995). Concerns regarding soyabeans. *Health Freedom News*, September 1995. pp. 1-5.
- FAO (1992). Food and Agricultural Organization of the United Nation Technology of production of edible flours and protein and protein from soyabeans. pp. 1-24, 68-70 and 107-111.
- Federal Office of Statistics (1996). Annual Abstract of Statistics. 1996 Edition, FOS Lagos, Nigeria.
- Ogundipe HO, Oguntunde AO (1990). Prospects for Soyabeans Utilization in Nigeria. An invited paper presented at the Nigerian 3rd annual conference of the Nigeria soyabeans Association. National Cereals Research Institute, Badegi, Nigeria. March 26 – 29, p. 11.
- Setright R (1996). Herbal medicine: Healthy recipes. New England Journal of Medicine Get Wed. Spunarp Ltd.